



INFRARED EYE SCANS OF EFFICIENT (LEFT; RFI = -1.54) AND INEFFICIENT (RIGHT; RFI = 1.41) BEEF HEIFERS.

“Growth Efficiency Screening: 1. Cow Herd Applications. 2. Feedlot Applications”

## IDENTIFYING EFFICIENT CATTLE USING INFRARED TECHNOLOGY

**PROJECT NO.:** 0007-126

**RESEARCH INSTITUTION:** Agriculture and Agri-Food Canada (Lacombe Research Station)  
**LEAD RESEARCHER:** Dr. Al Schaefer

**Objectives:** This researcher is studying whether:

1. infrared thermography measurements collected on cows and feedlot cattle are related to residual feed intake, and
2. if infrared thermography measurements can accurately identify more efficient animals.

**Background:** Winter feed costs can account for up to 75% of operating costs in a cow-calf operation, and can exceed 60% of overall beef production costs. Although appropriate herd health and feed management can improve efficiency, genetics still influence how effective these tools will be in each animal. It would be very beneficial to be able to identify animals with more efficient genetics, or to match groups of animals to management systems tailored to optimize their efficiency.

Individual feed efficiency measurements are very expensive and time consuming to collect. As a result, equipment to measure feed efficiency has primarily been installed by a few research facilities and large bull test stations. Developing ways to rapidly and accurately screen or rank cattle for feed efficiency would be very beneficial to the beef industry. Infrared technology may be a useful screening tool.

Infrared may help to measure how much feed

energy is being lost in the form of body heat. Much less than half (perhaps even as low as 30%) of the feed energy consumed by a beef cow is used for growth, reproduction or milk production. The rest is used for other “maintenance” activities of the body that are necessary for life. All of these metabolic activities generate heat, some of which is lost through the animal’s hide. Infrared technology can be used to measure how much heat an animal is producing, but whether it is a good predictor of overall efficiency is still being studied.

This researcher is collecting both infrared scans and feed intake measurements on a herd of research cows as well as commercial feedlot cattle. The relationship between feed intake and heat loss will be compared to see whether the infrared measurements can predict which animals will be the most efficient.

**Implications of the Research:** An economical, accurate and portable method of routinely evaluating feed efficient animals would help in seedstock breeding and commercial management decisions.



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